

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>P23983PCAU</b>	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. <b>PCT/AU2005/000021</b>	International filing date ( <i>day/month/year</i> ) <b>11 January 2005</b>	Priority date ( <i>day/month/year</i> ) <b>12 January 2004</b>	
International Patent Classification (IPC) or national classification and IPC  Int. Cl.  <b>B42D 15/10 (2006.01)      G02F 1/133 (2006.01)</b>			
Applicant <b>SECURENCY PTY LIMITED et al</b>			

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of sheets, as follows:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</li> <li><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or table related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the report</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input checked="" type="checkbox"/> Box No. VI Certain documents cited</li> <li><input type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul>
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Date of submission of the demand <b>18 July 2005</b>	Date of completion of this report <b>21 December 2005</b>
Name and mailing address of the IPEA/AU  <b>AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929</b>	Authorized Officer   <b>MATTHEW FORWARD</b> Telephone No. (02) 6283 2606

**Box No. I Basis of the report**

1. With regard to the language, this report is based on:

- The international application in the language in which it was filed
- A translation of the international application into , which is the language of a translation furnished for the purposes of:
- international search (under Rules 12.3(a) and 23.1 (b))
  - publication of the international application (under Rule 12.4(a))
  - international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

the international application as originally filed/furnished

the description:

pages	as originally filed/furnished
pages*	received by this Authority on with the letter of
pages*	received by this Authority on with the letter of

the claims:

pages	as originally filed/furnished
pages*	as amended (together with any statement) under Article 19
pages*	received by this Authority on with the letter of
pages*	received by this Authority on with the letter of

the drawings:

pages	as originally filed/furnished
pages*	received by this Authority on with the letter of
pages*	received by this Authority on with the letter of

a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3.  The amendments have resulted in the cancellation of:

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (*specify*):
- any table(s) related to the sequence listing (*specify*):

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (*specify*):
- any table(s) related to the sequence listing (*specify*):

\* If item 4 applies, some or all of those sheets may be marked "superseded."

Box No. V	<b>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</b>	
<b>1. Statement</b>		
Novelty (N)	Claims 1-68	YES
	Claims	NO
Inventive step (IS)	Claims 1-68	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-68	YES
	Claims	NO
<b>2. Citations and explanations (Rule 70.7)</b>		
<p>The following documents identified in the International Search Report have been considered for the purposes of this report:</p> <ul style="list-style-type: none"> <li>D1 JP 03-118198 (TOPPAN PRINTING CO LTD)</li> <li>D2 US 6160597 (SCHADT et al)</li> <li>D3 JP 2001-256531 (DAINIPPON PRINTING CO LTD)</li> <li>D4 WO 2001/055960 (ROLIC AG)</li> <li>D5 JP 2003-185835 (DAINIPPON PRINTING CO LTD)</li> <li>D6 WO 1994/002329 (PORTALS LIMITED)</li> <li>D7 US 5602661 (SCHADT et al)</li> <li>D8 US 5903330 (FUNFSCHILLING et al)</li> <li>D9 WO 2003/061980 (DE LA RUE INTERNATIONAL LIMITED)</li> </ul>		
<p>The present application defines a security document with a polymer substrate, an optical component of an orienting layer and a liquid crystal polymer in contact with the orienting layer and an intermediate adhesion improving layer between the orienting layer and the substrate. A method of manufacturing a security document is defined in claim 53, whereby a primer is applied to a substrate, an orienting layer is applied to the primer, the molecules of the orienting layer are aligned and a liquid crystal polymer is applied over the orienting layer.</p> <p>The inventive concept of the present application resides in improving adhesion between the substrate and the optical component. This concept is not unequivocally defined in the independent claims</p> <p>D1 discloses a substrate (1), a metal reflecting layer (3) formed by vapour deposition, a liquid crystal (LCP) layer (4), a polarizing film (5) (i.e. an optical layer) and a protective layer (6). An adhesion improving layer between an optical component and the substrate is not disclosed by this document.</p> <p>In document D2, a photo-oriented polymer network (PPN) (2) is applied over substrate (1). Layer (2) can also be a polyimide layer rubbed in one direction, having an orienting effect obtained by SiO<sub>x</sub> sputtering (re claims 29 to 32). Over layer (2) is a layer (3) of cross-linked liquid crystal (LCP) monomers, a decoupling layer (6) and upper orienting layer (6). As in D1, improving adhesion between layer (2) and the substrate is not suggested.</p> <p>Document D3, in figure 7, recites a security product with a base (11), separation layer (21), protective layer (18A), and a series of optical alignment layers (12, 14, 16) and LCP layers (13, 15, 17). The final layer is a heat sealing layer (22). This document does not disclose an intermediate layer that improves adhesion between the optical component and the substrate.</p>		

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

In document D5, an authenticity identifying structure includes the substrate of plastic (2) (paragraph 0012), an adhesive (3) (paragraph 0017), a heat resistant improvement layer (4), an optical component of detailed irregularities such as hologram (5a) (paragraph 0024), an LCP layer (5), and a protective layer (6) (see figure 1). D5 discussed the importance of the adhesives layer (3) in obtaining a firmly laminated structure (paragraphs 0044 to 0046). However none of the other documents cited teach of the need for a separate adhesive layer. Thus the person skilled in the art would not be motivated to combine the disclosure of D5 with any of documents D1 to D4, or D6 to D9

Document D4 recites an optical security device having a first layer of optically anisotropic material selectively oriented in different directions over the area of the layer such as to encrypt an object within the layer (re claims 49 to 52). In the embodiment of figure 2, the device has a substrate (10) of glass, paper or plastic, a reflector layer (12) of metal or a cholesteric (LCP) material, a patterned LCP layer (14). Layer (12) is coated or printed onto the substrate (page 7, lines 5 to 7). An adhesion layer is not suggested by this document.

Document D6 provides a polymer substrate (1) with a layer of LCP including hidden images. In D7 spaced substrates (1, 5) have immediate PPN layers (2, 4) and a liquid crystal network (6) between the PPN. D8 recites an optical component with orientation layer (2) on substrate (1) and cross linked LCP layers over laying the orientation layer. Document D9 provides a polymer note having a metallic layer with areas removed and LCP added to the demetalised regions. None of the documents D6 to D9 disclose a security document with an adhesive layer as defined in the present claims.

Articles 33(2) to 33(3) of the PCT are satisfied, claims 1 to 68 are considered to be novel and possess an inventive step in view of the D1 to D9 either alone or in combinations obvious to one or ordinary skill in the art. Article 33(4) is satisfied, claims 1 to 68 have a self evident industrial application.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/AU2005/000021

**Box No. VI Certain documents cited**

## 1. Certain published documents (Rule 70.10)

Application No. <u>Patent No.</u>	Publication date <i>(day/month/year)</i>	Filing date <i>(day/month/year)</i>	Priority date ( valid claim) <i>(day/month/year)</i>
P,A JP 2004-053870	19 February 2004	19 July 2002	19 July 2002

This document discloses a base of resin (11), an adhesive layer (12), LCP layer (13) and a protective layer (15). This document does not suggest an orienting layer as defined by claim 1.

## 2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure

Date of non-written disclosure  
*(day/month/year)*Date of written disclosure  
referring to non-written disclosure  
*(day/month/year)*